REMARKS/ARGUMENTS

In the Final Office Action mailed on January 26, 2009, claims 1-14 are rejected. Additionally, claims 12-14 and the specification are objected to. In response, Applicants have amended claims 1-3, 6, 8, and 10, added new claims 15 and 16, and file herewith a Request for Continued Examination (RCE). Applicants hereby request reconsideration of the application in view of the claim amendments, the new claims, the RCE, and the below-provided remarks.

Objections to the Specification

Regarding the Final Office Action's suggestion to add section headings, Applicants respectfully decline because the indicated suggestions in 37 C.F.R. § 1.77(b) are not statutorily required for filing a non-provisional patent application under 35 USC § 111(a), but per 37 C.F.R. § 1.51(b) are only guidelines that are suggested for Applicants' use. The section headings are not mandatory, and in fact when Rule 77 was amended in 1996 (61 FR 42790, Aug. 19, 1996), Bruce A. Lehman, Assistant Secretary of Commerce and Commissioner of Patents and Trademarks, stated in the Official Gazette:

"Section 1.77 is permissive rather than mandatory. ... 1.77 merely expresses the Office's preference for the arrangement of the application elements. The Office may advise an applicant that the application does not comply with the format set forth in 1.77, and suggest this format for the applicant's consideration; however, the Office will not require any application to comply with the format set forth in 1.77."

In view of the above, Applicants prefer not to add section headings.

Claim Objections under 37 C.F.R. 1.75(c)

Claims 12-14 are objected to under 37 C.F.R. 1.75(c), as allegedly being of improper dependent form for failing to further limit the subject matter of a previous claim. However, Applicants respectfully assert that claims 12-14 further limit the independent claim 1, as described in 37 C.F.R. 1.75(c).

> "(c) One or more claims may be presented in dependent form, referring back to and further limiting another claim or claims in the same application." (See 37 C.F.R. 1.75(c)).

In particular, claim 12 recites a "*memory device, comprising a voltage driver circuit according to claim 1*" (emphasis added), claim 13 recites an "*integrated circuit, comprising or including a memory device according to claim 12*" (emphasis added), and claim 14 recites a "*computing system, including an integrated circuit according to claim 13*" (emphasis added). Because claims 12-14 recites in part a "*memory device*," an "*integrated circuit*, "and a "*computing system*," Applicants respectfully assert that claims 12-14 further limit independent claim 1.

Claim Rejections under 35 U.S.C. 112

Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, as allegedly failing to comply with the written description requirement. Specifically, the Final Office Action states that claims 1 and 6 contain subject matter, "*during a high voltage operation, there is a substantially zero voltage drop across said relatively lower breakdown voltage driver,*" which was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention.

In response, Applicants respectfully submit that the description of the above-identified limitation of claims 1 and 6 is found in Applicants' specification at, for example, Figs. 7 and 8, page 9, lines 16-26, the paragraph between page 9, line 27 and page 10, line 8, and the paragraph between page 11, line 20 and page 12, line 5. In particular, with respect to Fig. 7, voltage drop across low voltage devices Q7, Q8 is prevented by high voltage transistors Q1, Q2, which feed the gates of the low voltage devices Q7, Q8. (See also in Applicants' specification at page 10, lines 5 and 6). Additionally, with respect to Fig. 8, voltage drop across GO_2 devices Q9, Q10 is prevented by transistors Q5, Q6, which feed the gates of the GO_2 devices Q9, Q10. (See also in Applicants' specification at the paragraph between page 11, line 20 and page 12, line 5). Thus, Applicants respectfully request that the claim rejections under 35 U.S.C. 112, first paragraph, be withdrawn.

Claim Rejections under 35 U.S.C. 102 and 103

Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Mentze et al. (U.S. Pat. No. 7,030,654, hereinafter "Mentze"). Claims 6, 7, and 11 are rejected

under 35 U.S.C. 103(a) as being unpatentable over Mentze in view of Parkinson (U.S. Pat. No. 5,889,415). Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mentze in view of Parkinson and Chen et al. (U.S. Pat. No. 7,193,441, hereinafter "Chen"). Additionally, claims 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Mentze in further of Rhee (U.S. Pat. Pub. No. 2001/0000949). However, Applicants respectfully submit that the pending claims are patentable over Mentze, Parkinson, Chen, and Rhee for the reasons provided below.

Independent Claim 1

Claim 1 has been amended to recite in part that "*said high voltage breakdown driver comprises inverters and said relatively lower breakdown voltage driver comprises an inverter, wherein an output of one of the inverters of said high voltage breakdown driver is connected to an input of the inverter of said relatively lower breakdown voltage driver.*" Support for the amendment to claim 1 is found in Applicants' specification at, for example, Fig. 7 and page 9, lines 16-26, and the paragraph between page 9, line 27 and page 10, line 8. Additionally, claim 1 has been amended to correct informalities.

Applicants respectfully assert that Mentze fails to disclose that "*an output of one of the inverters of said high voltage breakdown driver is connected to an input of the inverter of said relatively lower breakdown voltage driver*," as recited in amended claim 1. Additionally, Applicants respectfully assert that Mentze fails to disclose that "*during a high voltage operation, said high voltage breakdown driver is connected to said output and there is a substantially zero voltage drop across said relatively lower breakdown voltage driver*"(emphasis added), as recited in claim 1. Thus, Applicants respectfully assert that amended claim 1 is not anticipated by Mentze.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Mentze discloses that a low voltage to high voltage level shifter circuit (100) includes a high voltage buffer stage (102) and a low voltage buffer stage (104). (See Fig. 1 and column 3, lines 15-20). Additionally, Mentze discloses that an exemplary low

voltage to high voltage level shifter circuit (11) includes a high voltage buffer stage (102a), which includes transistors (208), (210), (212), (214), (216), and (218), and a low voltage buffer stage (104a), which includes transistors (220) and (222). (See Fig. 2, column 3, lines 47-56, and column 4, lines 23 and 24). Mentze further discloses that the output of the high voltage buffer stage (102a) is connected to a transistor (224) in an output stage (106a) and that the input of the transistors (220) and (222) of the low voltage buffer stage (104a) is connected to an input signal V_{in}. (See Fig. 2 and column 4, lines 27-33).

Because Mentze discloses that the output of the high voltage buffer stage (102a) is connected to the transistor (224) in the output stage (106a) and that the input of the transistors (220) and (222) of the low voltage buffer stage (104a) is connected to the input signal V_{in}, Applicants respectfully assert that Mentze fails to disclose that an output of some of the transistors (208), (210), (212), (214), (216), and (218) is connected to the input of the transistors (220) and (222). Thus, Applicants respectfully assert that Mentze fails to disclose that "*an output of one of the inverters of said high voltage breakdown driver is connected to an input of the inverter of said relatively lower breakdown voltage driver*," as recited in amended claim 1.

Although Mentze discloses a high voltage buffer stage (102), (102a) and a low voltage buffer stage (104), (104a), Mentze fails to disclose that there is a substantially zero voltage drop across the low voltage buffer stage (104), (104a) during a high voltage operation. In particular, Mentze discloses that the low voltage buffer stage (104a) is driven by the input voltage V_{in} and generates an inverted low voltage control signal to drive a transistor (226) of the output buffer stage (106a). (See Fig. 2 and the paragraph between column 4, line 66 and column 5, line 3). Because Mentze discloses that the low voltage buffer stage (104a) is driven by the input voltage V_{in}, and in turn, drives the transistor (226) of the output buffer stage (106a), Applicants respectfully assert that the voltage drop across the low voltage buffer stage (104a) is not substantially zero. Thus, Applicants respectfully assert that Mentze fails to disclose that "*during a high voltage operation, said high voltage breakdown driver is connected to said output and there is a substantially zero voltage drop across said relatively lower breakdown voltage driver*"(emphasis added), as recited in amended claim 1.

Because Mentze does not disclose the above-identified limitations of amended claim 1, Applicants respectfully assert that amended claim 1 is not anticipated by Mentze.

Dependent Claims 2-5 and 12-14

In view of the amendments to claim 1, claims 2 and 3 have also been amended. Additionally, claim 3 has been amended to be dependent on claim 2. Claims 2-5 and 12-14 depend from and incorporate all of the limitations of the independent claim 1. Thus, Applicants respectfully assert that claims 2-5 and 12-14 are allowable at least based on an allowable claim 1.

Independent Claim 6

Claim 6 has been amended to recite in part that "*the high breakdown voltage driver comprises a voltage level shifter that is connected at the input of the circuit that is between first and second voltage lines and the relatively lower breakdown voltage driver comprises an inverter, wherein an output of said voltage level shifter is connected to an input of the inverter of the relatively lower breakdown voltage driver and the inverter of the relatively lower breakdown voltage driver is connected to the single output.*" Support for the amendment to claim 6 is found in Applicants' specification at, for example, Fig. 8 and the paragraph between page 11, line 20 and page 12, line 5. Additionally, claim 6 has been amended to correct informalities.

Because of the similarities between amended claim 1 and amended claim 6, Applicants respectfully assert that the remarks provided above with regard to amended claim 1 apply also to amended claim 6. Accordingly, Applicants respectfully assert that amended claim 6 is not obvious over Mentze in view of Parkinson.

Additionally, Applicants respectfully assert that the proposed modification of Mentze in view of Parkinson would change the principle of operation of Mentze. If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959) (see MPEP §2143.01 (VI)).

As described above, Mentze discloses that the low voltage buffer stage (104a) is driven by the input voltage V_{in} and generates an inverted low voltage control signal to drive a transistor (226) of the output buffer stage (106a). (See Fig. 2 and the paragraph between column 4, line 66 and column 5, line 3). Parkinson teaches that an output of a first voltage supply terminal (114) is connected to an input of a second voltage supply terminal (116) through a conductor (112). (See Fig. 1 and column 1, lines 18-43). Therefore, if the output of the high voltage buffer stage (102a) is connected to the input of the low voltage buffer stage (104a), the driving signal of the low voltage buffer stage will be changed to the output of the high voltage buffer stage (102a). However, the principle of operation of Mentze involves using the input voltage V_{in} to drive the low voltage buffer stage (104a). As a result, the proposed modification of Mentze in view of Parkinson will change the principle of operation of Mentze.

Dependent Claims 7-11

In view of the amendments to claim 6, claims 8 and 10 have been amended. Claims 7-11 depend from and incorporate all of the limitations of the independent claim 6. Thus, Applicants respectfully assert that claims 7-11 are allowable at least based on an allowable claim 6.

New Claims 15 and 16

Claims 15 and 16 have been added. Support for claim 15 is found in Applicants' specification at, for example, original claims 1-3, Fig. 7 and page 9, lines 16-26, and the paragraph between page 9, line 27 and page 10, line 8. Support for claim 16 is found in Applicants' specification at, for example, original claims 6-8, Fig. 8, and the paragraph between page 11, line 20 and page 12, line 5. Claims 15 and 16 depend from and incorporate all of the limitations of the corresponding independent claims 1 and 6, respectively. Thus, Applicants respectfully assert that claims 15 and 16 are allowable based on an allowable claims 1 and 6, respectively. Additionally, claims 15 and 16 may be allowable for further reasons, as described below.

Claim 15 recites that "*source electrodes of some high voltage breakdown transistors and a source electrode of a first relatively lower breakdown voltage transistor*

are connected to a first voltage line, wherein source electrodes of some other high voltage breakdown transistors and a source electrode of a second relatively lower breakdown voltage transistor are connected to a second voltage line" (emphasis added). Applicants respectfully assert that Mentze fails to disclose the above-identified limitations of claim 15.

As described above, Mentze discloses that an exemplary low voltage to high voltage level shifter circuit (11) includes a high voltage buffer stage (102a), which includes transistors (208), (210), (212), (214), (216), and (218), and a low voltage buffer stage (104a), which includes transistors (220) and (222). (See Fig. 2, column 3, lines 47-56, and column 4, lines 23 and 24). Mentze also discloses that the source electrodes of the transistors (208) and (216) of the high voltage buffer stage (102a) are tied to input signal V_{ddH}, that the source electrode of the transistor (214) of the high voltage buffer stage (102a) is tied to input signal V_{in}, and that the source electrode of the transistor (218) of the high voltage buffer stage (102a) is tied to input signal V_{ddL}. (See Fig. 2 and column 4, lines 14-33). Additionally, Mentze discloses that the source electrode of the transistor (220) of the low voltage buffer stage (104a) is tied to input signal V_{ddL} and that that the source electrode of the transistor (222) of the low voltage buffer stage (104a) is tied to Ground. However, as shown in Fig. 2, Mentze discloses that none of the transistors (208), (210), (212), (214), (216), and (218) of the high voltage buffer stage (102a) has a source electrode tied to Ground. That is, Mentze fails to disclose that the source electrode of the transistor (222) of the low voltage buffer stage (104a) and the source electrode of any of the transistors (208), (210), (212), (214), (216), and (218) of the high voltage buffer stage (102a) are connected to the same voltage line. Thus, Applicants respectfully assert that Mentze fails to disclose that "*source electrodes of some high voltage breakdown transistors and a source electrode of a first relatively lower breakdown voltage transistor are connected to a first voltage line, wherein source electrodes of some other high voltage breakdown transistors and a source electrode of a second relatively lower breakdown voltage transistor are connected to a second voltage line"* (emphasis added), as recited in claim 15.

Claim 16 includes similar limitations to claim 15. Because of the similarities between claim 15 and claim 16, Applicants respectfully assert that the remarks provided

above with regard to claim 15 apply also to claim 16. Thus, Applicants respectfully assert that Mentze fails to disclose all of the limitations of claim 16.

CONCLUSION

Applicants respectfully request reconsideration of the claims in view of the amendments and the remarks made herein. A notice of allowance is earnestly solicited.

At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account **50-4019** pursuant to 37 C.F.R. 1.25. Additionally, please charge any fees to Deposit Account **50-4019** under 37 C.F.R. 1.16, 1.17, 1.19, 1.20 and 1.21.

Petition is hereby made under 37 CFR 1.136(a) to extend the time for response to the Final Office Action of 04/26/2009 to and through 06/26/2009, comprising an extension of the shortened statutory period of two months.

Respectfully submitted,

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